

# Functions & Recursion (1B)

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### f3.c

```
#include <stdio.h>
#include <string.h>

void reverse( const char * const p) {
    printf("given p= \"%s\"\n", p);
    if ('\0' == p[0]) {
        printf("reverse(\"\") returns \n");
        return;
    }
    else {
        printf("reverse(\"%s\") + %3c \n", &p[1], p[0]);
        reverse( &p[1]);
        putchar( p[0] );
    }
}

int main(void) {
    char s[] = "ABCDEFGH";
    int i;

    printf("sizeof(s)= %ld \n", sizeof(s));

    for (i=0; i<sizeof(s); ++i) {
        printf("s[%d]= 0x%02x %2d %c\n", i, s[i], s[i], s[i]);
    }

    reverse(s);
    printf("\n");
}
```

**f4.c**


#### f4.c

```
#include <stdio.h>

int add(int a, int b);
int sub(int a, int b);
int mul(int a, int b);
int div(int a, int b);

int main(void) {
    int (*fp) (int a, int b);

    fp = &add;
    printf(" (*fp)(33,11)= %d \n", (*fp)(33,11) );

    fp = &sub;
    printf(" (*fp)(33,11)= %d \n", (*fp)(33,11) );

    fp = &mul;
    printf(" (*fp)(33,11)= %d \n", (*fp)(33,11) );

    fp = &div;
    printf(" (*fp)(33,11)= %d \n", (*fp)(33,11) );
}

int add(int a, int b) { return a+b; }
int sub(int a, int b) { return a-b; }
int mul(int a, int b) { return a*b; }
int div(int a, int b) { return a/b; }
```

#### f4.c

```
#include <stdio.h>

int psum(int n) {
    int k, S=0;
    for (k=1; k<=n; ++k) S+=k;
    return S;
}

int g = 100;

int main(void) {
    int S1;
    int (*fp) (int n) ;

    fp = psum;

    S1 = fp(g);
    printf("S1=%d\n", S1);

    printf("sizeof(fp)= %ld bytes \n", sizeof(fp));
    printf("fp= %p &fp= %p \n", fp, &fp);
    printf("psum= %p &psum= %p \n", psum, &psum);
    printf("main= %p \n", main);

    return 0;
}
```